CLAIMS

1. A moving picture encoding method for performing a multi-frame motion prediction with reference to a plurality of picture frames, comprising:

including, in reference frames used for the multi-frame motion prediction, a frame that has been encoded in a higher picture quality than the other frames of the same picture type.

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- 2. The method according to claim 1, wherein the frame encoded in the higher picture quality is a frame to which more code amount is assigned than the other frames of the same picture type.
- 3. The method according to claim 1, wherein the frame encoded in the higher picture quality is a frame having a smaller quantizing parameter than the other frames of the same picture type.
- 4. The method according to claim 1, wherein the frame encoded in the higher picture quality is a P-picture frame.
- 5. The method according to claim 1, wherein the frame encoded in the higher picture quality is a B-picture frame.
- 6. The method according to claim 5, further comprising a step of: when a plurality of continuous B-picture frames is encoded, in comparison with a final B-picture frame in said continuous B-picture frames, encoding B-picture frames prior to said final B-picture frame in a higher picture

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- 7. The method according to claim 1, further comprising a step of: arranging the frames encoded in the higher picture quality at constant frame intervals.
- 8. The method according to claim 6, further comprising a step of: arranging the frames encoded in the higher picture quality at constant frame intervals.
- 9. The method according to claim 1, further comprising a step of: adaptively changing a frame interval of the frames encoded in the higher picture quality in accordance with differential information and motion information between a reference frame and a subject frame to be encoded.
- 10. The method according to claim 6, further comprising a step of: adaptively changing a frame interval of the frames encoded in the higher picture quality in accordance with differential information and motion information between a reference frame and a subject frame to be encoded.
- 11. A moving picture encoding apparatus for performing a multi-frame motion prediction with reference to a plurality of picture frames, comprising:

selection means for selecting at least one reference frame from a plurality of reference frames of the same picture type; and

encoding means for encoding the selected reference frame in a higher picture quality than the other reference frames of the same picture type.

- 12. The apparatus according to claim 11, wherein said encoding means assigns more code amount to the selected reference frame than the other reference frames of the same picture type.
- 13. The apparatus according to claim 11, wherein said encoding means sets a smaller quantizing parameter for the selected reference frame than the other reference frames of the same picture type.
- 14. The apparatus according to claim 11, wherein said selected reference frame is a P-picture frame.
- 15. The apparatus according to claim 11, wherein said selected reference frame is a B-picture frame.
- 16. The apparatus according to claim 15, wherein said selection means, from a plurality of continuous B-picture frames, selects a B-picture frame prior to a final B-picture frame in said continuous B-picture frames.
- 17. The apparatus according to claim 11, wherein said selection means selects said reference frame at constant frame intervals.
- 18. The apparatus according to claim 16, wherein said selection means selects said reference frame at constant frame intervals.
 - 19. The apparatus according to claim 11, further comprising: moving picture analysis means for outputting differential information

and motion information between a reference frame and a subject frame to be encoded,

wherein said selection means selects said reference frame in a manner that frame intervals of reference frames to be selected are adaptively changed in accordance with said differential information and said motion information.

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20. The apparatus according to claim 16, further comprising: moving picture analysis means for outputting differential information and motion information between a reference frame and a subject frame to be encoded:

wherein said selection means selects said reference frame in a manner that frame intervals of reference frames to be selected are adaptively changed in accordance with said differential information and said motion information.

21. An input/output apparatus to/from which moving picture data encoded by performing a multi-frame motion prediction with reference to a plurality of picture frames is input or output:

wherein said encoded moving picture data includes a frame encoded in a higher picture quality than the other frames of the same picture type in reference frames used for the multi-frame motion prediction.

22. An input/output apparatus to/from which moving picture data encoded by performing a multi-frame motion prediction with reference to a plurality of picture frames is input and output, comprising:

a video decoder for decoding said encoded moving picture data; and monitor means for monitoring a picture type, a reference frame, a quantizing parameter, a variable length code, and a frame memory, supplied from said video decoder 1 and for determining whether or not said encoded moving picture data includes a reference frame that is used for the multi-frame prediction and that is encoded in the higher picture quality than the other frames of the same picture type.

23. A program for making a computer that executes moving picture encoding by performing a multi-frame motion prediction with reference to a plurality of picture frames, execute processes of:

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selecting at least one reference frame from a plurality of reference frames of the same picture type; and

encoding the selected reference frame in a higher picture quality than the other reference frames of the same picture type.

24. A program for making a computer that executes moving picture encoding by performing a multi-frame motion prediction with reference to a plurality of picture frames, execute processes of:

obtaining differential information and motion information between a reference frame and a subject frame to be encoded;

selecting at least one reference frame from a plurality of reference frames of the same picture type in a manner that intervals of reference frames to be selected are adaptively changed, in accordance with said differential information and said motion information; and

encoding the selected reference frame in a higher picture quality than the other reference frames of the same picture type. 25. A computer readable storage medium stored with a program for making a computer that executes moving picture encoding by performing a multi-frame motion prediction with reference to a plurality of picture frames, execute processes of:

selecting at least one reference frame from a plurality of reference frames of the same picture type; and

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encoding the selected reference frame in a higher picture quality than the other reference frames of the same picture type.

26. A computer readable storage medium stored with a program for making a computer that executes moving picture encoding by performing a multi-frame motion prediction with reference to a plurality of picture frames, execute processes of:

obtaining differential information and motion information between a reference frame and a subject frame to be encoded;

selecting at least one reference frame from a plurality of reference frames of the same picture type in a manner that intervals of reference frames to be selected are adaptively selected, in accordance with said differential information and said motion information; and

encoding the selected reference frame in a higher picture quality than the other reference frames of the same picture type.